

SL2048 TURBO Codec



QD2048 TURBO Decoder

Sky Lane TURBO Codec

TPC Option
SL2048 L-Band Modem
QD2048 Quad Demod

FEATURES:

- ◆ Pass up to 40% more traffic through a link without increasing satellite bandwidth.
- ◆ Best value option in an Earth Station (low cost high return)
- ◆ Increased coding gain over conventional Viterbi or concatenated Reed Solomon.
- ◆ Reduced latency (delay) at lower data rates compared to R-S
- ◆ Version for SL2048 modem (encoder and decoder)
- ◆ Version for multi channel demodulator QD2048 (four decoders)

Turbo coding is a new and exciting form of error correction enabling satellite operators to increase the capacity of existing links by 40% or more without increasing the satellite bandwidth. At the same time operators can enjoy the added benefit of reduced latency which enhances the throughput and quality of IP and VOIP services.

Most ground stations use Viterbi coding or Viterbi with Reed Solomon concatenated coding. These techniques have been used in a wide range of voice and data applications for many years but the increased demand for bandwidth hungry services plus the growth in voice services has driven operators to look for cost effective ways of increasing capacity and improving quality.

Satellite bandwidth is often the most costly part of any satellite link and simply increasing bandwidth is a costly way to increase data rates. Turbo coding is a new development in forward error correction that enables more information to be transmitted through an existing channel. Simply replacing Viterbi Reed-Solomon modems on the ground with SPL Turbo modems enables 40% more data to be transmitted over the same satellite channel.

The latency or delay in Reed Solomon concatenated coding increases as the data rate is reduced, this is particularly noticeable in low rate voice services and often it is not practical to use Reed Solomon for voice applications below 128 kbps. SPL Turbo product code (TPC) offers improved performance over Reed Solomon yet it has far superior latency performance. Even at 64 kbps the latency is only 75ms, three to four times better than Reed Solomon.

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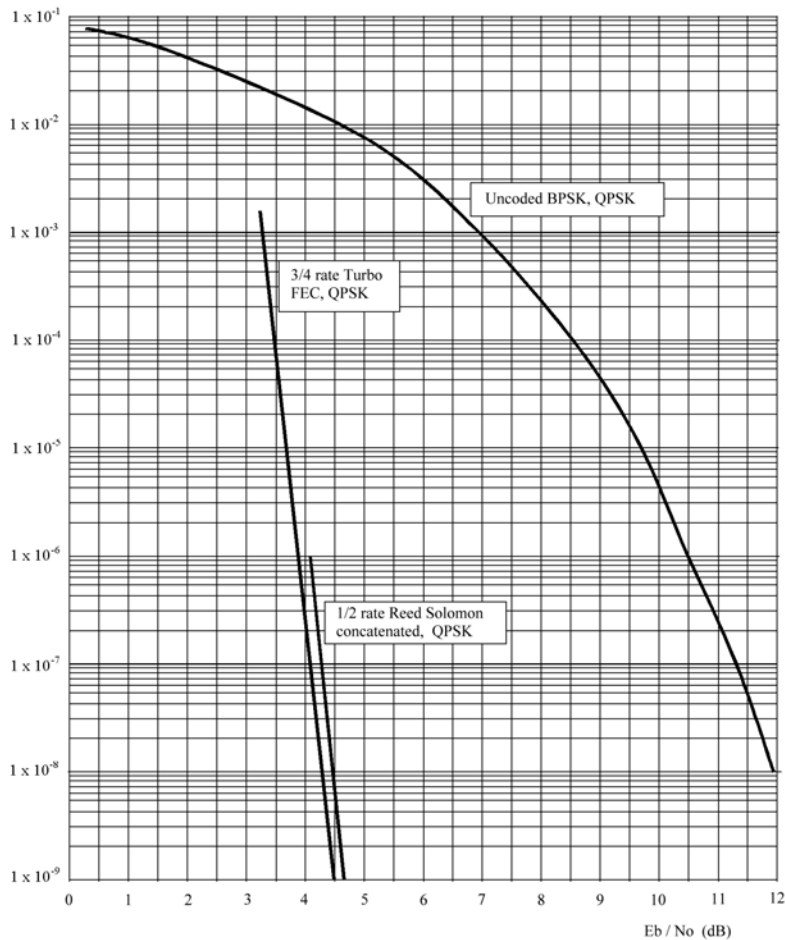
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CODEC/DECODER SPECIFICATIONS

Code Rate	3/4 Rate
Latency	75 msecs at 64 kbps
Dimensions	Two dimensional, TPC block code
Data Rate	9.6 to 3,288 kbps
Modulation modes	BPSK and QPSK
Doppler Buffer Options	0, 16 kb, 256 kb
	13 x 15 cm (SL2048), 12 x 10 cm (QD2048)

PHYSICAL AND ENVIRONMENTAL PARAMETERS

Dimensions	
Temp. Range Operating / Storage	0 to 50°C / -25°C to 85°C
Humidity Operating / Storage	90% non condensing / 99% non condensing
Altitude	10,000 feet



BER performance of SkyLane modem with 3/4 rate Turbo Product Code FEC Compared to 1/2 Rate Viterbi with Concatenated Reed Solomon